

Notes 9/24 - Solving Equations

- When you solve an equation, you're working backwards and undoing

→ A M E P
S D

Ex: $7x + 5 = 14$

$$\begin{array}{r} 7x + 5 = 14 \\ -5 \quad -5 \\ \hline 7x = 9 \end{array}$$

$$\boxed{x = \frac{9}{7}}$$

- Sometimes you have to simplify a side first

Ex: $5a + 3 - 2a = a + 7$

$$\begin{array}{r} 3a + 3 = a + 7 \\ -a \quad -a \end{array}$$

$$\begin{array}{r} 2a + 3 = 7 \\ -3 \quad -3 \end{array}$$

$$\begin{array}{r} 2a = 4 \\ \frac{2a}{2} = \frac{4}{2} \end{array}$$

$$\boxed{a = 2}$$

Extra Practice:

1) $7a - 3a + 2a - a = 16$

2) $27 = -9(y + 5)$

3) $3f - 2 = 4f + 5$

■ Solving for a variable

→ More like rearranging the equation to isolate a given variable

Ex: Solve $S = \pi r l + \pi r^2$ for l

$\quad \quad \quad -\pi r^2 \quad \quad \quad -\pi r^2$

$$\frac{S - \pi r^2}{\pi r} = \frac{\pi r l}{\pi r}$$

$$l = \frac{S - \pi r^2}{\pi r}$$

Ex: $3V = 3\frac{1}{3} \pi r^2 h$. Solve for r

$$\frac{3V}{\pi h} = \frac{\pi r^2 h}{\pi h}$$

$$\sqrt{\frac{3V}{\pi h}} = \sqrt{r^2}$$

$$r = \sqrt{\frac{3V}{\pi h}}$$